Volunteer Lake Assessment Program Individual Lake Reports

SILVER LAKE, HARRISVILLE, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,408	**Max. Depth (m):**	26.2	**Flushing Rate (yr^{-1}):**	0.2
Surface Area (Ac.):	333	**Mean Depth (m):**	10.4	**P Retention Coef:**	0.79
Shore Length (m):	7,400	**Volume (m^3):**	13,878,500	**Elevation (ft):**	1319

TROPHIC CLASSIFICATION

Year	Trophic class
1990	OLIGOTROPHIC
1998	OLIGOTROPHIC

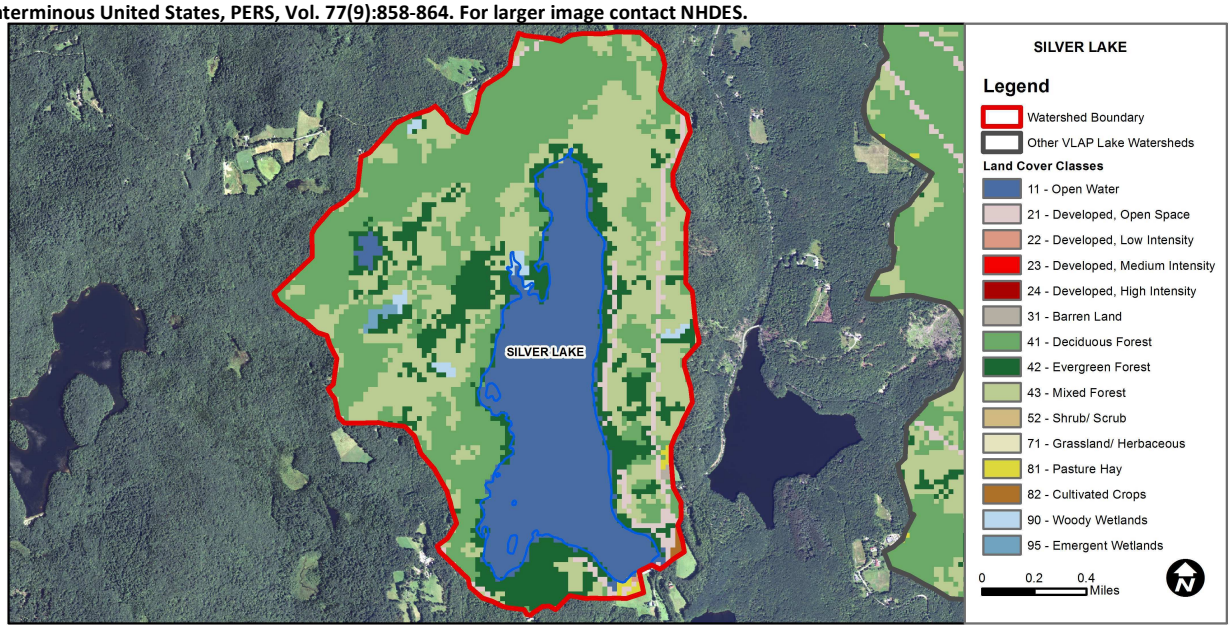
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	Oxygen, Dissolved	Very Good	There are a total of at least 10 samples with 0 exceedances of criteria.
	Dissolved oxygen satura	Very Good	There are a total of at least 10 samples with 0 exceedances of criteria.
	Chlorophyll-a	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator.
Primary Contact Recreation	Escherichia coli	No Data	No data for this parameter.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	23.7	Barren Land	0.07	Grassland/Herbaceous	0
Developed-Open Space	2.88	Deciduous Forest	31.44	Pasture Hay	0.29
Developed-Low Intensity	0.03	Evergreen Forest	14.02	Cultivated Crops	0.15
Developed-Medium Intensity	0	Mixed Forest	26.37	Woody Wetlands	0.76
Developed-High Intensity	0	Shrub-Scrub	0	Emergent Wetlands	0.26

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Silver Lake, Harrisville

2014 Data Summary

Observations and Recommendations (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **Chlorophyll-a:** Chlorophyll levels were low in June, increased slightly in July, and then decreased slightly in August. Average chlorophyll levels remained low in 2013 and much less than the state median. Historical trend analysis indicates relatively stable chlorophyll levels with moderate variability between years.
- **Conductivity/Chloride:** Deep spot and tributary conductivity levels were low and remained stable from June through August. Average epilimnetic (upper water layer) conductivity levels were much less than the state median and historical trend analysis indicates significantly decreasing (improving) epilimnetic conductivity since monitoring began. A similar trend was present in other area lakes.
- **Total Phosphorus:** Deep spot, Eastside Inlet, Main Inlet, Lead Mine Inlet 1 and 2, Outlet, and Sandy Bch. Inlet phosphorus levels were stable and low from June through August. Sucker Brook phosphorus levels were average in June and July and elevated in August after a significant storm event flushed wetland systems. Historical trend analysis indicates highly variable epilimnetic phosphorus since monitoring began.
- **Transparency:** Transparency measured without the viewscope (NVS) was good in June, decreased (worsened) slightly in July likely due to wave conditions and a recent significant storm event, and then increased (improved) slightly in August. Historical trend analysis indicates relatively stable transparency with moderate variability between years. Transparency measured with the viewscope (VS) was generally much better than that without and likely a better representation of actual conditions.
- **Turbidity:** Epilimnetic and Hypolimnetic turbidities were low. Metalimnetic turbidity increased in August potentially due to a layer of algae. Eastside Inlet, Lead Mine Inlet 1 and 2, Outlet, and Sandy Bch. Inlet turbidities were low. Sucker Brook turbidity was elevated in July and August following significant storm events and flushing of wetland systems.
- **pH:** Epiimnetic pH was within the desirable range of 6.5-8.0 units in June and then decreased to less than desirable in July and August. Metalimnetic and Hypolimnetic pH levels fluctuated below the desirable range. Tributary pH levels were also less than desirable. Historical trend analysis indicates relatively stable epilimnetic pH with moderate variability between years.
- **Recommended Actions:** Significant storm events occurred in July and August and tributary phosphorus and turbidity levels remained low which is great news. Stormwater improvement projects implemented in the watershed likely helped to reduce the impact of stormwater runoff to these tributaries and the lake. Keep up the great work!

Station Name	Table 1. 2014 Average Water Quality Data for SILVER LAKE							
	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	Total P ug/l	Trans. m		Turb. ntu	pH
					NVS	VS		
Epilimnion	1.97	1.76	21.9	3	7.33	9.33	0.47	6.53
Metalimnion			22.2	5			0.82	6.39
Hypolimnion			21.7	7			0.78	5.98
Eastside Inlet			18.9	6			0.46	5.79
Lead Mine Inlet 1			19.8	6			0.76	6.16
Lead Mine Inlet 2			13.9	5			0.47	5.82
Outlet In Stream			22.4	3			0.61	6.44
Sandy Bch Inlet 1			21.2	6			1.17	6.26
Sucker Brook			14.9	22			2.01	5.34

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: > 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: between 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Historical Water Quality Trend Analysis

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Improving	Data significantly decreasing.	Chlorophyll-a	Stable	Trend not significant; data moderately variable.
pH (epilimnion)	Stable	Trend not significant; data moderately variable.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data highly variable.